Using Objects (cont.) / Reading input

- Review of object references
- Java API and packages
- using the Java API documentation
  - packages
  - method headers
- Ex of creating and using objects: reading input
  - Scanner class
Announcements

• Staff office hours on web page.
• 1st prog. assgt. (PA1) to be published in the next few days
• Students in the following categories need to see me after class (or in office hours today):
  – missed the first lecture
  – no programming experience
  – not officially enrolled (e.g., on waiting list)
Review of object references / String
Java API

• API = Application Programmer Interface
• all the classes in the extensive Java library
  – Includes 1000s of classes

• We'll discuss further:
  – library organized into packages
  – how to find out how to use the classes provided
Java API packages

• *packages* organize sets of related classes

• Examples:
  – `java.awt` (has some graphics classes such as `Rectangle`),
  – `java.lang` (has basics such as `String` and `System`)

• to use a class, need to know the package it is in

• import statement:
  ```java
  import java.awt.Rectangle;
  ```
Java API documentation

• API doc.
  – available on the web (linked from course web page)
  – can get a local copy (install JDK)
  – selected classes/methods in textbook (Appendix)

• API doc describes the interface for the classes:
  – class name + description
  – package name
  – method headers + descriptions
What is a method header?

• Like function headers, but appear inside a class definition (we'll see class def next lecture)
• Example method call:
  
  rect.translate(5, 10);

• Corresponding method header:

  public void translate(int x, int y)
Java API Documentation

• Let's check out the API documentation on the web...
Reading console input

- use `java.util.Scanner`
- Pass `System.in` to scanner constructor: 
  
  ```java
  Scanner in = new Scanner(System.in);
  ```
- Skips over whitespace, and reads in next sequence of non whitespace chars:
  ```java
  in.nextInt()
  in.nextDouble()
  in.next()  // [String]
  ```
- Reads in whole line as a string:
  ```java
  in.nextLine()
  ```
Example: Reading input

• Small example program in ReadName.java
How do you write code that combines word-by-word reading (e.g., with `nextInt()` or `next()`) and line-by-line reading (i.e., with `nextLine()`)?

- Specific example: write code that when run does...

  Enter your age: 32
  Enter your whole name: Joseph P. Blow

See `TestReadLine.java`